

ALTERNATIVE ROAD SURFACE MATERIALS

Public Act 84 of 2015 Section 660

Fiscal Year (FY) 2016

The Michigan Department of Transportation (MDOT) continues to work with road construction industries and its many other customers to develop and enhance alternative road surface materials for road construction projects as required by Public Act 84 of 2015, Section 660. MDOT has a long and rich history of looking to incorporate new materials, recycled materials, and new processes into the department's road construction portfolio, and has been a leader in the use of recycled asphalt in pavements for the last 30 years. In addition, over the last few years, MDOT has had several pilots that have incorporated crumb rubber, as well as recycled shingles, into hot mix asphalt mixtures. Over the past 20 years, MDOT has piloted both Hot In-Place recycling and Cold In-Place recycling, and have monitored these projects for their life span. MDOT is very much supportive of the legislative direction for investigating and monitoring new processes and materials into our pavement designs. In accordance with the reporting requirements the following identifies the department's efforts in FY 2015:

- 1. Section 660(1)--The legislature encourages the department to examine the use of alternative road surface materials, including recycled materials, and to develop criteria and specifications for their use in both department-managed and contracted projects.**

MDOT continues to examine the use of alternative road surface materials, up to and including recycled materials. Currently, MDOT has permissive specifications for the use of Reclaimed Asphalt Pavement (RAP), Recycled Asphalt Shingles (RAS), and recycled tire rubber. In addition, MDOT piloted a Hot In-Place recycling project in FY 2015. Hot In-Place is a process that heats up existing pavement, removes the top layer, mixes in emulsion additives, and immediately places the recycled asphalt.

- 2. Section 660(2)--The department shall evaluate the use of a bituminous mix which incorporates crumb rubber from scrap tires.**

MDOT evaluated the use of bituminous mixes, which incorporates crumb rubber. A crumb rubber asphalt mixture project was piloted in 2013. The results of this pilot project, as well as evaluation of various county projects that incorporated crumb rubber, were used to develop the current permissive recycled tire rubber specification MDOT has in place.

- 3. Section 660(3)--The department shall report on efforts taken to implement this section. The report shall include descriptions of specific materials evaluated, evaluation methods, and results of specific field or laboratory tests. The department shall complete and submit the report to the state budget director, the house and senate appropriations subcommittees on transportation, and the house and senate fiscal agencies on or before March 1, 2016.**

a. **Crumb Rubber/Recycled Tire Rubber:**

MDOT developed a permissive specification for use of recycled tire rubber. Originally, the specification mirrored the specification that was used in the 2013 crumb rubber pilot project. However, reports of poor performance on various projects caused some concern. Specifically, various county projects around the state were showing premature distress and MDOT's pilot project was also showing signs of poor performance. MDOT believes the issue is that some specifications for recycled tire mixes modify or waive Performance Grade (PG) Binder performance tests because the addition of recycled tire rubber may prevent the binder from passing current American Association of State Highway and Transportation Officials (AASHTO) PG Binder specifications using approved testing protocols. MDOT believes the revised tests do not accurately predict field performance. Therefore, in order to ensure performance, MDOT decided to not allow altering or waiving current AASHTO PG Binder tests. Acceptance on future projects incorporating recycled tire rubber will be based on a combination of field inspections and testing.

b. **Reclaimed Asphalt Pavement (RAP)/Recycled Asphalt Shingles (RAS):**

MDOT continues to base acceptance of asphalt mixes, including those containing RAP/RAS, on a combination of testing and field inspection.

c. **Hot In-Place Recycling:**

The pilot project that was constructed in FY 2015 is being monitored for performance to determine if it is a viable fix for MDOT to use in the future and if any changes need to be made to the specification for future projects.